Patent Claims

1. A method for splicing of optical waveguides (1) by means of a fused joint, in which the two end sections (2) of the optical waveguides to be connected have any outer casing (3) removed from them, are cleaned and are cut to length before the splicing operation, characterized
   - in that the two end sections (2) are introduced into a respective mobile clamping holder (4, 4') and are gripped with a clamping action by it in such a way that they are aligned axially with respect to one another in at least one relative position,
   - in that each clamping holder is moved along a feed path (5, 5'), with the feed paths running approximately parallel,
   - in that, in the course of the feeding of the clamping holders, two or more workstations (7, 8, 9, 10), which are arranged between the feed paths, are approached sequentially, at which the preparatory work operations and the splicing operation are carried out on the end sections,
   - and in that, at the end of the feed process, the spliced optical waveguide is removed from the clamping holders.

2. The method as claimed in claim 1, characterized in that, after a receiving station (6) for gripping them with a clamping action, the end sections (2) are supplied successively to at least one stripping station (7), a cleaning station (8), a cutting-to-length station (9) and a splicing station (10).

3. The method as claimed in claim 1 or 2, characterized in that the two clamping holders (4) are moved synchronously

or asynchronously until the splicing operation.

4. The method as claimed in one of claims 1 to 3, characterized in that the spliced optical waveguides are placed in a holding palette for two or more optical waveguides at a storage station.

5. The method as claimed in one of claims 1 to 4, characterized in that the end sections are pulled by a motor into the clamping area of the clamping holder at a receiving station (6), and are preferably stretched before being gripped with a clamping action.

6. The method as claimed in one of claims 1 to 5, characterized in that the end sections are introduced between heating jaws and are heated at a stripping station (7), in that the outer casing is cut into and is held firmly, in that the end sections are separated from the outer casing by removal of the clamping holder by the stripping station, and in that the remaining outer casing is thrown away from the stripping station.

7. The method as claimed in one of claims 1 to 6, characterized in that the end sections have a cleaning liquid and/or air applied to a subsection of them at a cleaning station (8), with the clamping holder being removed from the cleaning station in order to apply the cleaning liquid and/or air to the entire end section.

8. The method as claimed in one of claims 1 to 7, characterized in that the end sections are clamped in at a cutting-to-length station (9), are scored by a blade and are broken by partial bending, and in that the broken-off stump is carried out of the cutting-to-length station.

9. An apparatus for splicing of optical waveguides by means of a fused joint, having a splicing station (10) at which the end sections (2) of the optical waveguides to be connected are clamped in such that they are aligned with one another, and can be connected to one another by the influence of heat, characterized by
   - at least two mobile clamping holders (4, 4') for gripping the end sections with a clamping action, and which can be moved on approximately parallel feed paths (5, 5') which are arranged at a distance from one another,
   - two or more workstations (7, 8, 9, 10), which are arranged between the feed paths and one of which is the splicing station (10),
   - wherein the clamping holders (4, 4') can be moved to the workstations sequentially in order to carry out preparatory work operations on the end sections and in order to carry out the splicing operation.

10. The apparatus as claimed in claim 9, characterized in that, between the feed paths (5, 5'), a receiving station (6) for gripping the end sections with a clamping action is followed by at least one stripping station (7), a cleaning station (8), a cutting-to-length station (9) and the splicing station (10).

11. The apparatus as claimed in claim 9 or 10, characterized in that the feed paths (5, 5') are formed by guide rails (12), and in that the clamping holders (4, 4') are each mounted on one carriage (13) which can be moved along the guide rails.

12. The apparatus as claimed in one of claims 9 or 10, charac

terized in that the clamping holders can be moved on three spatial axes, specifically and preferably in the horizontal direction along the feed paths, in the vertical direction transversely with respect to the feed paths, and towards respectively away from the workstations.

13. The apparatus as claimed in one of claims 9 to 12, characterized in that a receiving station (6) has a stationary clamping apparatus for gripping the end sections (2) with a clamping action, and has an insertion apparatus by means of which an end section can be clamped in the clamping apparatus (14) in the stretched state before it is transferred to a mobile clamping holder.

14. The apparatus as claimed in claim 13, characterized in that the insertion apparatus has an insertion funnel for insertion of the end section, as well as a sensor (16) for limiting the insertion movement.

15. The apparatus as claimed in one of claims 9 to 14, characterized in that a stripping station (7) has a pair of heating jaws (17), at least one stripping blade (18) and at least one throwing-out lever (19) for throwing out the pulled-off outer casing.

16. The apparatus as claimed in one of claims 9 to 15, characterized in that a cleaning station (8) for cleaning an end section has at least one pair of cleaning jaws (21), through which the end section can be passed by means of a relative movement of the clamping holder, and at which a cleaning liquid and/or air can be applied to the end section.

17. The apparatus as claimed in one of claims 9 to 16, charac

terized in that a cutting-to-length station has a pair of cutting-to-length jaws (24) for fixing the end section, a scoring blade (25) which can be moved transversely with respect to the end section, and a breaking finger (26) which can be pressed against the end section, wherein at least the relative movements of the cutting-to-length jaws and scoring blade can be controlled via a cam transmission (27).

18. The apparatus as claimed in claim 17, characterized in that the breaking finger is guided in the upper breaking jaw.

19. The apparatus as claimed in one of claims 9 to 18, characterized in that a movable transport holder (29) is arranged above the workstations, by means of which the spliced optical waveguides can be picked up from the splicing station (10) and can be transported to a storage plate (35) which is preferably mounted above the receiving station (6) where they can be stored.